VME Carrier Card

- Xilinx Virtex II Pro PowerPC
- PCI Interface (5V and/or 3.3V ?)
- 2 PMC (XMC?) daughter sites
- Ethernet (dual?)
- RTDL / Event Link / Beam Sync Link Receivers
- Flash
- DP RAM
- SDRAM (multiple) (standard DDR)
- Serial Port for debug
- High Speed fiber transceiver
- Power distribution
- VME interface (NOT slot0 controller)
- Cross bar switch?
- Timing inputs
- Clock distribution to daughter sites
- Timing distribution to daughter sites
- Remote FPGA configuration
- Front panel JTAG connection
- FPGA revision that can be queried

Stand Alone Carrier Card

- same as VME Carrier Card
- 6 PMC (XMC?) daughter sites

PMC DAC/DDS

- four channel DAC
- NCO in FPGA with external DACs
- ‘n’ bit DACs
- external clock input
- interchangeable output filtering
- on board SDRAM
- Incorporate function generator functionality
- Max NCO clock frequency ?

PMC High Frequency ADC

- four channel ADC
- ‘n’ bit ADCs at ‘m’ MHz
- on board SDRAM

PMC Base Band ADC

- 8+ channel ADC
- 16 bit ADCs at 100 kHz minimum
- on board SDRAM
- user configurable analog / digital filtering
- internal / external clock selection
- front panel analog inputs

PMC Base Band DAC (low priority)

- 8+ channel ADC
- 16 bit ADCs at 100 kHz minimum
- on board SDRAM
- user configurable output filtering
- internal / external clock selection
- front panel analog outputs

PMC DSP

- Quad TigerSHARC
- on board SDRAM (possibly multiple banks
- internal / external clock selection ?
- front panel high speed I/O
- DPRAM ?
- Flash
- Front Panel Emulator connection
- Which Part (500MHz or 600MHz ?)

PMC High Speed Data Link

- 2-4 channels
- on board SDRAM
- copper and fiber connections

Distribution Amplifiers

A. 100 kHz to 50 MHz
- NIM format
- Variable gain
- +10 dBm drive capability
- 1 in – 4 out

B. 50 MHz to 800+ MHz
- NIM format
- Variable gain
- +10 dBm drive capability
- 1 in – 4 out
- low noise

C. RF in TTL out

1W Distribution Amplifiers

D. 100 kHz to 5 MHz
- NIM format
- Variable gain
- +30 dBm drive capability
- fast rf switch ?

E. 25 MHz to 800+ MHz
- NIM format
- Variable gain
- +30 dBm drive capability
- fast rf switch ?
- low noise

Measurement System

Three independent modes of operation

- Standard Monitoring - Logging
- Post Mortem - Large amounts of data stored but only retained on a failure trigger
- Triggered Acquisition –
    - Multiple independent setups
    - User configurable
    - Triggered setups
    - User controlled sample rates
    - Selection of any digital parameter

Psuedo Scope

- display any data sets as a function of time
- overlay current data and history data

Different Logging requirements for fast vs. slow cycling machines

- log every cycle in RHIC
- log every n cycles in Booster/AGS
- PPM operation for slow cycling machines (possibly 8 or more users)